EDWARD BURR VAN VLECK HALL

UNIVERSITY OF WISCONSIN DEDICATION DINNER

MAY 13-1963
EDWARD BURR VAN VLECK
1863 - 1943

Professor of Mathematics
The University of Wisconsin 1906-1929

"The illustrious son of a distinguished father
and the distinguished father of an illustrious son."

Ph.D. Göttingen 1893
Doctor of Mathematics and Physics, Groningen
Doctor of Science, University of Chicago
Doctor of Laws, Clark University
Doctor of Laws, Wesleyan University
Member, National Academy of Sciences
President, American Mathematical Society
1913-1915
INTRODUCTION OF WARREN WEAVER
by MARK H. INGRAHAM

To start with, I wish to explain to you that there is a rationale in our choice of persons to sit at the speakers' table. They all have dreamed of this building. In some cases the dreams were visions of what it could be and what it would mean to the University and to the Department of Mathematics. In other cases, especially of those who had to serve on the Building Committee, the dreams were nightmares of detail, of minor troubles, and of all the complexity of the bringing into being of such an edifice — but even they were often guided by visions and have seen the fulfillment of their dreams.

I believe the first person to have suggested that the new mathematics building be built in conjunction with Sterling Hall was Warren Weaver. True, he thought of it as an addition to the east end where the Army Research Center is now, so that there would be room in it for both mathematicians and physicists when we could eventually persuade the economists to move. It is this dream, developed it is true, that is Van Vleck Hall. There are three of the rest of us, Professor March, Professor Langer, and myself, here tonight who shared these aspirations with Warren in those days around '29 and '30 when a new mathematics building was first considered.

Such a wild dreamer would naturally be noted by the foundations, since foundations love to start projects hoping that they will be carried out by others, and Warren was tempted away from us to the Rockefeller Foundation.

Another aspect of Warren Weaver is the fact that he is one of the most articulate persons I know — almost suspiciously articulate since I used to worry as to whether a person could be so articulate and still have a sound judgment. But I found that his judgment guided his speech rather than that his speech guided his judgment. It is true, however, that my suspicions were a little more valid in the realm of the accuracy of reporting than they were in the realm of judgment. Warren would never tamper with wisdom; he might push the truth just a little bit. In fact, we used to say that if you wanted to know how a story should be told, you told it to Warren and about a year later, when he had forgotten who told it to him, you would hear it
again in its perfected form. But one story I heard the day after it happened, so that there could be little enlargement upon it — and I regret that we have not somehow acted to place a motto derived therefrom upon the walls of Van Vleck Hall. Warren was watching a crew race and overheard two students carry on a conversation about as follows: "Are you going to summer school?" "No." "Why not?" "I have to work." "Before you graduate you should go to summer school. It's the greatest way to spend a vacation — unless you take mathematics. There's no vacation in them birds."

What one person does affects what another does, and I presume if Warren had stayed in Madison it would have been a long time before I would have been chairman and probably never would have been dean. I enjoyed the work of the chairmanship and of the deanship, but I would readily have relinquished all of this to have had Warren and Mary with us during these many years. I have never reconciled myself to Warren's leaving, even though he left for a position of leadership in American science.

We welcome him back tonight on this occasion when his own foresight has been brought to fruition.

PROFESSOR EDWARD BURR VAN VLECK
by WARREN WEAVER

As one grows older, occasions of this sort become more and more attractive. They offer an opportunity to reminisce — which is one of the favorite occupations of the aged. They bring happily back to mind all sorts of pleasant incidents of far away and long ago. If one is old enough to go back in history far enough, then he can display the past with little fear that he will be challenged. It is as though a painter were offered a large clean canvas, a full range of pigments and subjects, and were promised that there would be no critics. When all these delights are combined with the deep pleasure of being in old haunts with old friends, then the standard opening phrase — I am happy to be here — is both unnecessary and inadequate.

Before I indulge in personal memories, however, I want to sketch briefly the history of the man we honor here. Professor Edward Burr Van Vleck was born on June 7, 1863 — which, this evening, is just twenty-five days less than an even hundred years ago. His Dutch and English forebears had come to New Jersey and Connecticut more than two hundred years earlier. As an undergraduate at Connecticut Wesleyan, where his distinguished father was Professor of Mathematics and Astronomy, the then young Edward was almost equally attracted by mathematics and by Greek literature. But mathematics won out, and after graduation he studied two years at Johns Hopkins and then taught three years at Wesleyan before going, in 1890, to Göttingen to study for his Ph.D. under the great and influential master Felix Klein.

He took his degree in 1893, and at once began his career as a creative scholar in mathematics. This is not the proper occasion for any details about Professor Van Vleck's research publications. The very titles would probably distress almost all of the women and some of the men in this room; and at other meetings which are being held in connection with the dedication of Van Vleck Hall, informed respect has already been paid to the uniformly high level of all that he did. For Professor Van Vleck was a perfectionist. He did not dash off fragmentary or undeveloped ideas, as some scientists have been known to do. He labored long and lovingly over everything he wrote, treating
scientific publication with the meticulous conscience which so gravely governed all of his conduct. The list of his research publications, as given in the biographical memoir which Rudolph Langer and Mark Ingraham wrote for the National Academy of Sciences, contains twenty-nine papers distributed over thirty-five years. There are many men with longer lists; but these are all solid, substantial, permanent contributions to scholarship, printed in the leading journals of the world.

After his student years in Germany, Professor Van Vleck came to Madison as an Instructor for three years, and then returned to Connecticut Wesleyan for a ten-year period. In 1906 he became Professor of Mathematics at The University of Wisconsin, and held that position for twenty-three years until he retired in 1929. (Incidentally, we should note that another mathematician also joined the Department in 1906, when Professor Van Vleck did; and I am sure we are all delighted that Herman March and Margaret are here with us tonight.)

Directly after his return from Germany, in 1893, Professor Van Vleck married Hester Laurence Raymond, of Lyme, Connecticut; and in 1899 their son John Hasbrouck Van Vleck was born. I will have something to say later concerning Mrs. Van Vleck; but the mention of the son, so happily with us tonight, leads me to say a word about the great scientific constellation formed by grandfather, father, and son. Illustrious parents often have rather ordinary children, and one has the impression that the brilliant child usually springs mysteriously from rather ordinary parents. In fact, if you were asked to write down from memory a list of say twenty-five obviously great figures of the past — scientists, statesmen, poets, artists, etc., and if you were then asked to say something about the father of each of these persons — or about their children — I think you would find that in very few of the cases were you prepared to say much of anything. Even in families touched by distinction, there are usually skips of one or two generations between the high spots. There have been notable exceptions, to be sure. Mathematicians are bound to think of the famous Bernoulli family, with eight well-known members spread over a century, three in that instance also being grandfather, father, and son. American historians are bound to think of the Adams family; and there have been (and are) the Huxleys and the Darwins. But in the scientific annals of our country, there has not, so far as I am aware, been any other case that matches the three Van Vlecks.

Having mentioned that the Van Vleck family came permanently to Madison and to The University of Wisconsin in 1906, I have the stage all set for reminiscing: for the Weaver family moved to Madison in 1904. We were, as I recall it, well settled in and established by the time the Van Vlecks got here. It is true that my own mathematical labors in the fall of 1904 were devoted, in the fifth grade, to the theory of ordinary fractions; whereas Professor Van Vleck had by that time already published four important research papers on the advanced theory of continued fractions — a field in which he became an acknowledged master. But in spite of this minor disparity in the level of our mathematical activities — and in our ages — it is nevertheless true that I have in my mind a most vivid and rewarding picture of Professor Van Vleck as he was at that time. For the Van Vleck pew, in Christ Presbyterian Church — then at the corner of Dayton Street and Wisconsin Avenue — was just three rows ahead of the Weaver pew. I must confess that I don’t remember Van turning up very regularly — but after all he was only seven then. And doubtless that also explains why Mrs. Van Vleck was also somewhat irregular in attendance. But there was nothing irregular about Professor Van Vleck. Professor Van Vleck was not an irregular person. He gave careful — even grave — consideration to any problem of conduct or duty; and his sturdy and precise New England conscience having led him to a decision, that decision would then prevail with almost majestic regularity.

My parents were active in that church, and I suppose that Professor Van Vleck and my father must have served together on various church boards and committees. The families were acquaintances, rather than friends. But it is to me a rich memory to recall that a dozen years before he became familiar to me in North Hall, I came to know first-hand the solidity of his character, the faithfulness of his personal schedule, the over-riding concern he had for standards whether of conduct or scholarship, and the kindly twinkle in his eyes.

I did not really get to know the son Van in those early days, and for exactly the same reason that I did not really know my own brother, namely, in both cases our ages differed by five years. And when you are ten years old, a five-year-old is a
hopeless infant, and a fifteen-year-old an inaccessible adult. It is a lovely mathematical fact that no matter when two persons are born, the ratio of their ages approaches more and more closely to unity as they get older. Thus by the time my wife and I returned to Wisconsin in the early twenties, the ages of Van and Abigail and Mary and myself differed only by small percents; and we had the great pleasure of becoming friends. We used to play bridge with the younger Van Vleck in their apartment up on Breeso Terrace; and each evening one hand was bound to be interrupted by a faint whistle followed by Van's looking at his watch and remarking something like "The 9:06 is two minutes late tonight."

When I finally got to the University as a freshman in 1912, I was enrolled as an engineer. This meant that in my first courses in mathematics I had no contact with Professor Van Vleck, but I nevertheless had the good fortune of having some really great teachers — Professor Charles Sumner Slichter, Herman March, and Henry Wolff. I had the incredible fortune of having Slichter as a teacher my freshman year, Herman March in Calculus, and Henry Wolff in the course that really opened up my eyes to the joys and rewards of applied mathematics. It was Math 110 — called "Advanced Mathematics for Engineers." This title was not pretentious as of 1914, although it contained some topics that a modern engineering freshman would take in his stride.

By the time I had discovered that I wanted to study mathematics rather than civil engineering, the accidents of scheduling again kept me from studying under Professor Van Vleck. Arnold Dresden's course was too early and complex course theory the years I took them. My really serious plunge into mathematics occurred in Arnold Dresden's course in real variable theory, which I took the year I was a senior engineer. He started, with Dutch precision and with — to a very green youngster — completely austere abstractness with Dedekind cut theory. For a senior engineer, it was equivalent to teaching a small child to swim by dumping him into the middle of the ocean.

Since my evolving interests continued to be oriented towards applied mathematics and theoretical physics, I had — I say with shame and sorrow — no group theory with Professor Skinner, no geometry with Dowling, no really advanced course with Professor Van Vleck. All of them — with Florence Allen, Thornton Fry, Rodney Babcock, Harriet Holt, and the others — I remember with great affection. As George Gobel used to say, you just don't hardly get that kind anymore.

It was really not until 1920-21, when I returned to The University of Wisconsin after a short period at CIT, that I had extensive personal and professional contact with Professor Van Vleck. The departmental office, presided over by Jumita Davis, was flanked on one side by the office which Herman March and I shared — on the other by the office which Professor Van Vleck, as Chairman of the Department, shared with Professor Dresden.

From those days of close professional association I choose only two incidents. The first is one which I particularly treasure, since it illustrates both the conscientious care with which Professor Van Vleck approached all his problems as Chairman of the Department — and also illustrates the intuitive directness and inspired accuracy with which Mrs. Van Vleck often acted. Mathematicians love to generalize, and I think I ought to pause here to announce a general theorem of great significance. It is this: Mathematicians' wives, using mysterious procedures which have as yet eluded explanation, arrive at correct conclusions much more frequently than do their husbands, using all the presumed power of logic. The incident I am reporting certainly supports this theorem.

Professor Van Vleck had the very difficult task of locating and engaging a new member for the mathematics staff at that moment, shortly after World War I, when there was so serious a manpower shortage. Casting desperately about, the only candidate of whom he could learn, from mathematical friends, was a man frankly described to be a poor teacher. One adviser at Wisconsin told Professor Van Vleck he better take this unpromising man, since he seemed to be the only person available. But Professor Van Vleck replied: "No, I'm going to gamble rather than settle on a man known not to be much good."

A day or two later Mrs. Van Vleck, at the breakfast table, said: "Edward, I think maybe I have the man for you. I believe (mentioning his name) that his brothers did well in mathematics at Wesleyan."

"But Hester, I do not really know that he has had any serious or extensive training in mathematics."
“Edward,” she said, “I wouldn’t worry a bit about offering him a job teaching mathematics. You know that Mark Ingraham comes from a very fine family.” Professor Van Vleck wired, and Mark responded by going directly to a Brooklyn book store to buy a copy of Fisher and Schwatt’s Algebra.

My second incident of these days comes from the moment, in 1928, when Professor Van Vleck asked Dean Sellery to be relieved of his chairmanship of the department one year before he retired, so that he could have a less hectic final year — for he took very seriously indeed the responsibilities of the chairmanship. I was invited to be chairman; and I went to Professor Van Vleck and asked him if I could count on the privilege and comfort of going to him for advice whenever a hard administrative problem arose.

I have never forgotten, and will never forget, his reply: for it taught me a very important lesson. As firmly and kindly as possible he told me that he would not give any advice, nor would he ever offer any post mortem opinions. He had retired the chairmanship; I had assumed it. He believed in doing his utmost so long as it was his responsibility — and then leaving the future entirely to the younger men. As I have had a succession of retirements, I have taken scrupulous care to remember and follow his generous and wise example.

Over our later years in Madison, Mary and I had the privilege of being rather frequent visitors and guests in the Van Vleck house. The living room of this home of the Van Vlecks is vividly in my memory. All around the room were solid and elegant bookcases. On the walls above the cases were really fine etchings. There were two by Sir Seymour Haden in that lovely room — the “Breaking Up of the Agamemnon” just to the right of the entrance to the dining room; and on the south wall, a specially fine print of “Sunset in Ireland” — one that I never looked at without pangs of very un-Christian envy.

I mention the books and the pictures because they symbolize the whole atmosphere of that home — the emphasis on the life of the mind, the life of the eye, and the life of the spirit.

One cannot forget a home such as that, the taste and grace and tranquility of the atmosphere, an elegance that was completely unassuming, a gentle formality that welcomed rather than frightened, an unfailing thoughtfulness and kindness to younger persons — all these form a picture of a very lovely kind of life, and one that few seem able to construct for themselves in the present world. Professor Van Vleck was, in all sober truth, a scholar and a Christian gentleman. Mrs. Van Vleck, with a whole array of artistic and literary interests many of which the two shared together, remains my idealized picture of a real lady.

We are met here, these three days, to dedicate a beautiful building named in Professor Van Vleck’s honor. A house that bears his name has a burden laid upon it. Nothing cheap or selfish or superficial must ever happen in it. Within it must exist the highest possible standards of dedication to the intellectual life. Within this house there must always be a deep concern for the importance of opening new horizons in the minds of young people. There must be complete acceptance of the social responsibility of truly aristocratic leadership. There must be friendship and dignity, dedication and taste, gentleness and occasional touches of quiet humor. For all these qualities are inherent in the proud name this building will bear.
INTRODUCTION OF
JOHN HASBROUCK VAN VLECK
by MARK H. INGRAHAM

Thank you, Warren. You have explained one thing. Earlier I pointed to the puzzling fact that you could be as articulate as you are and still exhibit sound judgment. You have explained this. The words are yours and the judgment is Mary's.

This morning Professor Kleene spoke of Edward Burr Van Vleck's work as a mathematician and we have just heard Warren Weaver speak of him as a man and as a citizen, but Warren expressed his regret that he never had Professor Van Vleck as a teacher. I had that privilege and I wish to say something about him in this capacity: first, as a lecturer and then as a teacher in conference with the individual student.

His lectures were beautifully organized and he had the gift of precise statement. This gift of precise statement was in spite of the fact that every once in a while his tongue had difficulty in catching up with his mind and would make jumps from one point or another in an effort to do so. But he usually realized what he had done and went back to iron out his statements until you knew exactly what was being said. His gift of organization and this sharp precision made his lectures memorable. Sometimes his desire to catch up with his mind and not to waste time in doing so led to unusual results: I was in a class in which there also was Ottis Rechard (for many years since then Dean of Letters and Science at the University of Wyoming). Ottis was a person of great patience but also of real persistence. Professor Van Vleck opened his class, as he often did, with the query: "Are there any questions?" and Mr. Rechard said, "Yes," and started to ask one; but before he had finished Professor Van Vleck launched into a reply which took twenty minutes and then said: "Mr. Rechard, have I answered your question?" Ottis said "No," and again started to state it and again was interrupted — this time by a fifteen-minute explanation followed again by the query: "Mr. Rechard, have I answered your question?" and the reply, "No." The performance was repeated for another fifteen minutes; and if you will add 20, 15, and 16, you will see that 50 minutes (a full class period) had been used at the end of which Professor Van Vleck said:
"Mr. Rechard, have I answered your question?" and Ottis said "No," but this time fully stated it — and Professor Van Vleck replied "No."

After I had been at Wisconsin for three years I decided, upon Professor Van Vleck's advice, to go to the University of Chicago to work with E. H. Moore, and one day Professor Van Vleck said to me: "You don't really know enough point set theory to work with Moore. Why don't you read up on it this summer and come around once a week to discuss it with me?" (I think the evenings were Wednesdays.) So once a week I went to his house; we went on to his back porch and I had the opportunity to ask questions on those points where I knew I needed help. After I was done with this he asked me questions and always made me realize that I should have asked him more, for he brought out many points on which my understanding was more vague than I had thought it was. This might last about two hours and then we would go into that livingroom that Warren has so beautifully described and sometimes, but not always, were joined by Mrs. Van Vleck. Soon either the atlas was out and we were discussing trails in the White Mountains or Switzerland or the Baedeker was produced and we were in the galleries of Florence. These evenings were teaching at its very highest.

The present to be worthy must transmit the heritage of the past to the future and enhance this heritage. Professor Van Vleck was a symbol of such a present and so was his family. He had a great heritage; he passed it on enlarged. In the leaflet included in the program is a quotation from Dean Holgate of Northwestern who, at the dinner of the American Mathematical Society in honor of Professor Van Vleck, spoke of him as "The illustrious son of a distinguished father and the distinguished father of an illustrious son."

And now I return to my duties as a toastmaster but not without a degree of personal reminiscence as well. The friendships of the Van Vlecks and the Ingrahams have been warm and close for well over a century. I cannot remember when it was not natural to have Van Vlecks in our home and my first clear remembrance of any of them was of climbing into the lap of John Monroe Van Vleck, when I was about four, and listing to his watch which, when he pressed a button, would ring first the hours and then the quarters and then the five minutes.

The next time I saw that watch was when my daughter, about four (who is this evening acting as hostess for our guests) climbed into Edward Burr Van Vleck's lap to listen to it. And my first remembrance of Professor Edward Burr Van Vleck was not in meeting him but in hearing my family of Wesleyanites discuss whether young "Ned," who showed great promise, could ever be as fine a scholar as his father. He proved himself so.

I first met Hasbrouck Van Vleck in Florence in 1910 and, in spite of the fact that it shows the insurmountable downgrading of a fourteen-year-old for an eleven-year-old, I will read three unexpurgated items from a diary I kept at that time:

"Florence, September 28th: Professor Van Vleck and Hasbrouck, age 11, were here to supper. Hasbrouck is nice but uninteresting." (That last word is a puzzler!)

"Florence, October 2nd: Today was Sunday but I did not go to church. Sundays are appreciated when one studies on weekdays. The Van Vlecks called today. Tomorrow Hasbrouck and I expect to go up to Fiesole which I am not sure of enjoying."

"Florence, October 3rd: Went up to Fiesole with Hasbrouck this afternoon and enjoyed it a great deal. Stayed in this morning. Hasbrouck is very nice but uninteresting among the most lines although knowing twice as much about railroads and steamboats as I do, I made a pretty good bluff of it anyway."

In the years that followed, both I suppose because Van's interests had broadened and because my insight had, I hope, become somewhat better, my amazement at his exact knowledge of many fields of intellectual importance has steadily increased and I have treasured his friendship. His loyalty to his alma mater, his respect and affection for his father, and his natural generosity have led him to furnish in a suitable and beautiful fashion the Conference Room on the ninth floor of Van Vleck Hall. He has also seen to it that a splendid portrait of his father, painted by his cousin Howard Van Vleck, who is with us tonight, will hang in that room.

There is no other one here tonight who has known me as long as has John Hasbrouck Van Vleck and there are only a few here who have known him as long as I have. It is my privilege to present him to you.
EDWARD BURR VAN VLECK, MY FATHER
by JOHN HASBROUCK VAN VLECK

In reminiscing, it is customary for the speaker to recall how the happiest days of his life were in his childhood or teens, but I can recall no such time when I experienced as much pleasure and gratification as I do today. I don't know anything I can say which would express adequately to the Department of Mathematics, Dean Ingraham, the late President Elvehjem, and the Board of Regents my appreciation of the fine new building being named after my father. It would not be appropriate, nor am I factually qualified, to appraise father's scientific work in mathematics, and it is pretty clear that the theme of my talk tonight should be essentially "life with father," interspersed with a few recollections of my own undergraduate days at the University.

Like the preceding speaker I will begin by reminiscing about my childhood days in Madison. Langdon Street consisted mainly of large estates extending right back to the lake, often with wooden sidewalks such as you now see only in the Westerns at the movies. Father had an immense affection for Madison scenery and its lakes, and insisted that when he bought a house it should have a view of Lake Mendota. So in 1907 he acquired a house on Pinckney Street with a modest amount of land, but with at that time an almost unimpeded view of the lake. One of my prouder childhood memories—in fact, just about my first Madisonian one—was regarding masonry in a certain sense associated with the Van Vleck name—perhaps a foreboding of the immensely finer correlation to come over fifty years later. This was when father replaced our wooden sidewalk by a cement one, which I regarded as something of a status symbol, as children today do power snow-throwers owned by their parents. I hasten to add that the new sidewalk was not acquired under duress. Pinckney Street was sufficiently removed from the Lower Campus, and the victories of Badger football teams at that time were sufficiently infrequent that the old sidewalk was not impounded by the students for a victory bonfire, a procedure to which one owes the initial construction of some of the cement sidewalks on which you now walk on Langdon Street.
My first introduction to mathematics was at a higher level than Warren Weaver's, namely when I was allowed to open the front door at receptions which father and mother gave in the rare event of lectures by visiting French mathematicians such as Hadamard or Borel. French mathematics was then in the top echelons, as the presence of two distinguished speakers in the present symposium shows that it still is today. The linguistic training was not as complete in those early days as it is today. I can recall father mentioning how one distinguished visitor talked continuously in his lecture about the development of the subject, followed by one a year later who repeatedly referred to demonstrations.

There are two or three points about father's life I would like to add that are not covered in Dr. Weaver's fine speech. He has stressed father's regular church attendance, but I might mention that Ingraham and Langer in their excellent biography aptly characterized him as a “liberal Puritan.” I will never forget father's chuckle when reading the newspapers at the time of the Scopes trial in 1925, and his remarking "Darrow's made a monkey out of Bryan."

The second point is father's great interest in the affairs of, and promotion of, the American Mathematical Society, not only in 1913 when he was president, but especially in the immediately preceding years when he was on the council. At that time there was bitter feeling, especially by the Chicago group, that no national, rather than sectional, meetings were held west of the Alleghenies. I'm afraid that the Harvard group was particularly adamant: Osmond, I remember father said, claimed he suffered from insomnia if he left Cambridge. In 1911 the crucial question was whether Bôcher, the then president of the Society, could be persuaded to come out to Chicago and give his presidential address there, rather than in the East. Cole, the secretary of the Society, was apparently willing to settle for a plan to move or less Balkanize it, whereas father believed that the organization should be national in scope. As a last resort Cole wrote father that he could try to do what he could in the matter, and I remember that father once told me that he believed he averted an open break in the American Mathematical Society. At any rate, a letter which Bôcher wrote father on February 27, 1911, says, "I wrote this morning to Cole... saying I would give the presidential address in Chicago. In doing this I yield my own judgment, which tells me that no useful purpose will be accomplished, to yours. You are on the ground, and ought to know." By the time in 1921 when Senator Lodge filed Bill 3622 to incorporate and thereby regularize the American Mathematical Society, all traces of regional parochialism seem to have disappeared, as the thirty-one initial trustees, of whom father was one, were well distributed geographically except that there was only one Californian.

The relatively large number of Wisconsin members in the American Mathematical Society in the early days was perhaps a reflection of father's interest in this organization. A letter written to Professor Dresden in 1916 gives the following membership statistics: "Madison 16, Harvard 18, Yale 16, MIT 14." Almost fifty years later I present these figures with some pride, for it was not easy to start the research tradition in a comparatively newly developed part of the country.

The next point I would like to make about father is that he was a hard worker, though not to the point of neglecting his family. When it came to looking after me at routine events such as the circus or other entertainment events he often felt that this could be delegated to a student who lived in the basement of the house in return for such services as stoking the furnace, etc. Father knew that on such occasions it mattered little whom I was with, because I would be so absorbed by the performance, and he therefore preferred to spend his time with me taking walks, where he could really visit, of which my earliest recollection is in the Göttingen woods in 1909 and the latest an extensive walking and riding trip in 1919 in Glacier National Park, of which father was very fond. By delegating me to another escort he saved himself a somewhat harrowing experience on Venetian night one year, when the fireworks launched from a raft in Lake Mendota exploded, with some rockets going horizontally into the audience. As I remember it, my student chaperon was a substitute tackle on the Wisconsin football team, and so was doubtless more effective in getting little Hashbrouck out of the semipanicky crowd than father would have been. And, speaking of football, although father was not particularly a sports fan, he felt a parental responsibility to take me to my first football game, and explain the great American game to me. He must have done this extremely competently, for I have been an overzealous football fan ever since. I'm rather
assiduously study it between trains when he missed connections in Chicago, only to discover when he reached Madison that he had covered not only the first year’s work, but part of the second year as well! Gone also, I fear, are the days when one could have a career in mathematical physics, starting the study of calculus in one’s junior year in college, as I did.

At this point I shall digress a little to describe some of my undergraduate years at Wisconsin. I pursued an unaccelerated program — a practically unmentionable term nowadays. I found my mathematics courses, taken mainly with Professor Skinner, exceedingly enjoyable, both because I liked the subject matter and because I found them relatively easy. The one time things threatened to get a little hot for me was when I was writing an examination for Professor Dresden in trigonometry, now a high school subject, when there were alarm bells, fire engines, and a hasty evacuation. The dome of old Main Hall, now Bascom, was burning off!

Father never put pressure on me to be a scientist, but insisted that I at least take mathematics through calculus. I had a late start on this even in my junior year, as I opened my first calculus book a month late when I was recovering from Spanish influenza in a rather anaerobic version of the Student Navy Training Corps, whose barracks were on State Street over Morgan’s pool hall.

To select a major I was in somewhat of a quandary. If I majored in mathematics I would have to take a course in differential equations under father, which at the time I thought wasn’t quite cricket. I realize now this was a mistake, and I was grievously punished. The so-called course in differential equations I took in graduate work at Harvard under Bouteron with much written work was the most back-breaking one I ever experienced, consisting essentially of exercises in algebraic manipulation and exotic substitutions rather than standard methods of solution such as power series. I loved French literature, read a lot of Molière, but couldn’t pronounce respectfully. My accent was much more diabolical than that of the early French visitors. Geology I liked, but then I had to draw, and solve triangles graphically, which I loathed. A physics major required an experimental senior thesis, for which the prerequisite was a course in glass blowing — an appalling prospect. Fortunately, there was a law on the Wisconsin books, harking back to the days when forensics outranked football, that participants in the annual joint debate between two so-called literary societies were excused from a thesis. So I was able to major in physics by making the Athena team and arguing against government ownership of railroads. I am so happy that Harold Noer, one of my colleagues on the Athena team, is here tonight. We were worried about the strength and ability of the opposing Philomathia team, and subsequent events have shown that our worries were well justified. Two of our three worthy opponents were later respectively a Research Vice President of General Electric and a President of the American Bar Association. However, Athena won, by a 3-2 judges’ decision.

In my senior year I took a course in analytical dynamics with Professor March, whom I am also happy to see here tonight. By this time I was better prepared mathematically, and could understand what was going on. It was this course which first opened my eyes to the beauties of mathematical physics.

When father retired in 1929, at the age of sixty-six, and after he and I had overlapped one year as professors at Wisconsin, he did not find the problem of adjustment to a different kind of life as difficult as often is the case with elderly people. He began by taking a trip around the world, a much more heroic and time-consuming undertaking (it lasted exactly a year) than in the present jet age. After his return he became quite fond of duplicate bridge, due in large part to the influence of Warren’s mother, Cecily Weaver, the then Green, or perhaps I should say Mrs. Culperton, of Madison. Also especially, father had acquired a sizable collection of Japanese prints, the arranging and cataloging of which was a considerable project.

Shortly before his retirement, father had two disciplinary problems — one of which he was able to handle rapidly, the other slowly. I was then a young assistant professor at Minnesota, and when I visited Madison one weekend I found the campus bulletin boards plastered with announcements of a series of lectures on relativity sponsored by Gamma Alpha, to be given by a man from a small college in the Twin Cities, and whom I will call Mr. X. The University of Minnesota’s physics department knew that he was a complete mountebank, and I said to Warren, “Why is Wisconsin bringing this kind of character down for lectures?” Thereby I feel I indirectly motivated sub-
sequent happenings. After Mr. X had talked almost two hours, three men disappeared from the front row. One of the three was a physicist no longer living, one is a distinguished geophysicist on the West Coast with a much honored Wisconsin name, and the third our preceding speaker. Five minutes later the lights winked, and the lantern curtain went up and down in sinusoidal fashion. Mr. X cancelled his remaining lectures. The student newspaper, The Daily Cardinal editorialized that the mathematics department was interfering with the Wisconsin tradition of free speech. With the usual degree of accuracy of college newspapers, it overlooked the fact that two of the three were physicists. The Board of Regents requested father to make an investigation as chairman of mathematics, and Professor Skinner volunteered to take over this duty. His report to father after the investigation was as follows: "I have definite information that no member of the mathematics department was in Sterling Hall when the lights winked. I advise you to ask no further questions." Only last week I sat next to one of the three crusaders at a dinner in Washington, and learned that Warren was a somewhat expendable member of the expedition, since, being based in North Hall, he was not familiar with the wiring system in the basement of Sterling. So he was allowed to go outdoors for some fresh air when the critical circuits were being adjusted. Fortunately, at that date the doctrine of guilt by association was not as highly developed as at a decade or two later.

Father's other disciplinary problem, the longer one to solve, was with me, or rather with the clarity and style of my scientific writing. He spent a large part of the summer of 1925, when I was visiting back home, in training me to write decent exposition in mathematical physics, as I was then writing my first book, Quantum Principles and Line Spectra. He stressed the importance of short, crisp sentences and of unambiguous meanings, the avoidance of dangling participles, and he also deplored running too many nouns in apposition — terms such as "three valence electron band spectrum emitters," a more or less German type of construction which, alas, is still too prevalent in physical journals. I feel that I owe an immense debt of gratitude to him. His wrestling with my scientific exposition helped me all my life, and has also indirectly improved the linguistic style of my doctoral students, to whom I have tried to play my father's role.

Father was a perfectionist in his literary style, even at the expense of having to make several drafts of his papers or important letters. I wish time permitted me to illustrate by reading extensively from his nontechnical writings, and I shall conclude by quoting only briefly from two of them. A report written in 1910 on "The Preparation of College and University Instructors in Mathematics" contains a paragraph which I believe epitomizes my father's philosophy.

"Two qualities may be noticed as especially needed by the American teacher. The first is a broad, liberal culture. The pursuit of mathematics in itself is doubtless a narrowing one. There is perhaps no science of which the development has been carried so far, which requires greater concentration and will power, and which by the abstract height of the qualities required tends more to separate one from daily life. A wide liberal culture therefore is eminently desirable for the establishment of that attractive personality so necessary for the best success in teaching."

The second quality, he goes on to say, is "moral fibre and force," especially as exhibited in patience with students and interest in their development.

My other quotation is from his address in 1916, at the dedication of the Van Vleck Observatory at Wesleyan, named after my grandfather, John Monroe Van Vleck, and made possible largely through the generosity of his brother, Joseph Van Vleck, the grandfather of the artist of the portrait shortly to be unveiled. Father's address was largely a tribute to astronomy, and some of his remarks seem almost an anticipation of the present space age. Some of his concluding sentences were:

"Every science has its romance, even mathematics, as I can testify. But is there another romancer such as the astronomer? His tales surpass The Arabian Nights in their appeal to the imagination. He crowns the pages of his science with wonderful stories of discovery — and these myths can be believed by everybody."

As father ended his dedicatory speech with a mathematician's tribute to astronomy, so shall I end mine with a physicist's tribute to mathematics. There is no other science, I believe, with such a wide range of motivation and chance to express the investigator's personality. It has a spectrum extending all the way from the purely aesthetic approach embodied in Hardy's
book, *A Mathematician's Apology*, to the utilitarian viewpoint that regards mathematics as only the handmaiden of bridge construction, aerodynamics, and the like. It combines, with a weighting factor depending on the temperament of the mathematician, the Descartian extollation of pure reason for its own sake and the Baconian concept of science as the servant of humanity. As Gauss has said, it is indeed the "Queen of the Sciences," and so it is appropriate that its building should occupy the commanding position that it does on what I shall always affectionately consider "The Hill." Also I cannot fail to add my personal pride that father's portrait should hang on the top floor with a magnificent view of the lakes that he loved so dearly. (The portrait of Edward Burr Van Vleck, by Howard Van Vleck, was then unveiled.)